

In the Claims

The following Listing of Claims replaces all prior versions in the application:

LISTING OF CLAIMS

1 – 5. (Cancelled).

6. (Currently Amended) A process for the manufacture of a solid polymer foam ~~as claimed in claim 1~~ by highly concentrated internal phase polymerization, which is formed of a crosslinked, exclusively hydrocarbon copolymer of styrenic monomers and which has a density of 40 mg/cm³ to 260 mg/cm³ and cells with a mean diameter of 10 micrometers or less, which process comprises the following steps:

a) producing an emulsion containing water bubbles ~~between~~ by mixing an organic phase, comprising ~~exclusively hydrocarbon~~ the styrenic monomers and a surfactant, ~~and with~~ an aqueous phase, comprising an electrolyte and a polymerization initiator, ~~is produced~~, the volume of the aqueous phase representing at least 74% of the total volume of the two phases;

b) reducing the diameter of the water bubbles contained in the emulsion ~~is subjected~~ obtained at step a) by subjecting said emulsion to shear ~~in order to reduce the diameter of the water bubbles that it contains;~~

c) copolymerizing said styrenic monomers ~~are polymerized~~ until a solid foam is obtained; and

d) washing and drying the solid foam obtained in step c) ~~is washed and dried.~~

7. (Original) The process as claimed in claim 6, in which the styrenic monomers present in the organic phase are styrene and divinylbenzene monomers.

8. (Original) The process as claimed in claim 7, in which the weight ratio of the styrene monomers to the divinylbenzene monomers is between 5 and 1.

9. (Original) The process as claimed in claim 6, in which the styrenic monomers represent

from 50 to 80% by weight of the weight of the organic phase.

10. (Original) The process as claimed in claim 6, in which the surfactant is diglyceryl monooleate.

11. (Original) The process as claimed in claim 6, in which the surfactant represents from 13 to 20% by weight of the weight of the organic phase.

12. (Original) The process as claimed in claim 6, in which the electrolyte is aluminum sulfate.

13. (Original) The process as claimed in claim 6, in which the electrolyte represents from 0.05 to 2% by weight of the weight of the aqueous phase.

14. (Original) The process as claimed in claim 6, in which the polymerization initiator is sodium persulfate.

15. (Original) The process as claimed in claim 6, in which the polymerization initiator represents from 0.1 to 2% by weight of the weight of the aqueous phase.

16. (Original) The process as claimed in claim 6, in which the water used for preparing the aqueous phase is water having a resistivity of about 18.2 megaohms.

17. (Original) The process as claimed in claim 6, in which step b) is carried out by injecting the emulsion into a container by means of a syringe connected to a pulser capable of delivering a pressure above atmospheric pressure.

18. (Original) The process as claimed in claim 17, in which the container is a mold having the shape and the dimensions of the foam that has to be manufactured.

19. (Original) The process as claimed in claim 17, in which the syringe is provided with a

needle having an internal diameter of 150 μm to 1 mm.

20. (Currently Amended) The process as claimed in claim 6, in which the copolymerization of the styrenic monomers is carried out at a temperature of around 30 to 70°C.

21. (Currently Amended) The process as claimed in claim 6, in which the washing of the foam comprises one or more operations of immersing ~~this~~ the foam in water, followed by one or more operations of immersing ~~it~~ the foam in an alcohol, which are ~~themselves~~ followed by one or more alcohol extraction operations.

22. (Currently Amended) The process as claimed in claim 6, in which the drying of the foam is ~~dried~~ carried out in an oven at a temperature of about 60°C.